













## Protest at 'witch-hunt' after Moro's death

Italy's students are afraid of a political clampdown after the killing of the former prime minister. Uli Schmelzer reports

ROME Students chased facilities at several Italian universities this week in protest against what they called a "witch-hunt" by security forces trying to smash the Red Brigades guerrilla organization which killed former prime minister Aldo Moro. At the usually sedate campus in Genoa, students issued a statement denouncing the guerrilla tactics but protesting against police raids and arrests. Throughout Italy, universities, frequently accused of being the incubators of the country's political violence, became the chief targets of the dragnet for the guerrillas.

In a raid on a student residence in Genoa alone, 20 youths were dragged from their rooms and detained. All but one have now been released. In Rome, Milan, Bologna and Turin, academics and students were arrested, but most were allowed to go home after a night in jail.

Ironically, at the Miss University of Rome, students, for the first time in years, took heed of a notice from the rector prohibiting all rallies for one week and throughout the country student associations were quick to condemn the brutal assassination of Signor Moro.

"We don't want to be identified with the Red Brigades and their methods but we intend to fight against any attempts to curb political activity on the campus," said one student leader.

The most spectacular police raid was against the University of Calabria—previously known as "an oasis of peace"—where security

agents claimed to have discovered a "nest" of subversive elements made up of academic staff and students.

Those arrested included Nim Russo, a professor of the chemistry faculty, researcher Flaminio Ardizzone, two lecturers and at least six students. The charge against them: "Subversive association as an armed gang."

In Rome students and teachers were among the 26 suspects detained for alleged links to the Red Brigades. Student organisations protested immediately and in a virulent message 22 teachers at Pescara's architectural institute condemned the detention of Rome University architecture professor Massimo Strati.

All but three of those arrested in Rome have since been released which prompted accusations that the detainees were no more than a "witch-hunt".

Police have claimed, however, that in many cases there must have been links to the guerrillas since some detained students had in their possession copies of the communiqué the Red Brigades issued during the 54-day Moro kidnapping drama.

The students claim the arrested are genuine political activists and have no affiliation to the extremist groups. However, security officials hope their dragnet will catch the big fish that could provide the lead in the hunt for the Red Brigades.

The Moro saga is seen by many sociologists as the result of progressive violence of the disillusioned elements in a movement that had its roots in 1960s student riots.

A member of that first nucleus of "68 leaders" was Renato Curcio (jailed since 1976), accredited as the principal theoretician and founding father of the Red Brigades.



Signor Moro's body found in a car hood.

gades. In 1968, Curcio, a Marxist-Leninist, only advocated the creation of a negative university where traditional lessons are abolished and replaced by debates and discussions on current problems.

Following the death of his wife Margherita Cagol (another prominent student leader) in 1975 in a police ambush, the action of his Red Brigades became increasingly bloody.

Since the 1968 movement and subsequent efforts failed to produce an envisaged association with Italy's trade unions the campuses have remained the principal recruiting ground for all ideological groups and a battlefield for their power struggle.

According to Rome University sociology dean Professor Franco Ferrarini, recruiting was facilitated by one of the achievements of the 1968 movement—the abolition of university classes and faculty administration to all students with a secondary education.

He says: "Before 1968 the students went out of the university and made links with the working class. Now you don't have to do this any more because the working class has come in the university and the campus has been turned into a political radicalization forum."

He added: "It is difficult to find the action taken against the political independence. They have to have no knowledge of the political independence. They have to have no knowledge of the political independence. They have to have no knowledge of the political independence."

## Adult training officials banned

from Martin Feinstein

CAPE TOWN

Two executive officials of the South African Council for Higher Education (SACHED)—a body which oversees adult education and training—have been barred from working on educational programmes.

Mr Clive Nettleton, the director of evaluation, and Mr. Andrew work for the council of affiliated organisations. They were barred from working on educational programmes.

SACHED was the driving force behind the 1981-82 National Education Conference, which was held in Johannesburg.

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A simple but cruel logistical dilemma is at the centre of the discussion. Government estimates of the number of students who will face an increase of some 500,000 in the next six years, based on a contraction of 70,000 in the space of the last years between 1980 and 1994. Can additional resources be acquired quickly enough to meet the surge and then be shed painlessly in the trough that will follow?

Much of the preliminary reaction to the Government's discussion paper has focused on the problem of staff and the expansion of both these resources depends on the continuation of massive additional public expenditure, which will have to be negotiated in a context of competing claims from other sectors of the economy.

The discussion document reckons that the price of meeting the demand for the mid-1990s could be an additional cumulative expenditure of £2.5 billion, or an extra £250m in each of the next years.

Measured instead from 1981, when the government's estimate of the number of students who will face an increase of some 500,000 in the next six years, based on a contraction of 70,000 in the space of the last years between 1980 and 1994. Can additional resources be acquired quickly enough to meet the surge and then be shed painlessly in the trough that will follow?

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## Ups and downs of finding a way over the hump

Peter David reports on the logistic demands in the discussion document 'Higher Education into the 1990s'

It is important that responses to the discussion paper pay at least as much attention to loggish the expansion of the system as to mitigating the impact of a subsequent shrinkage.

Even if the availability of money could be guaranteed the construction of purpose-built accommodation in sufficient quantity to take in the peak demand of the mid-1990s could still present major difficulties.

Current estimates of the time needed to buy the land, obtain planning approval and build a unit for 1,000 students or more exceed six years. Some institutions, with land and plans already in their pockets, might be able to cut the lead-time to four years. Nevertheless, even a rapid building programme undertaken immediately would only begin to reach fruition by the time student numbers reach their (central estimates) peak of more than 600,000 in 1985.

The two areas of underutilization identified in the document—redundant colleges of education and the 50,000 university science places that are empty or occupied by non-science students—could ease the burden marginally, but most of the surplus science places are expected to be filled by the increase in student numbers already planned for 1981.

The closing colleges are unlikely to be of great use because so many of them are small, rural and remote.

Added to the problems of acquiring new accommodation is the fact that a great deal of the existing building stock in higher education is approaching the end of its useful life and requires replacement. In the public sector, in particular, there is a substantial legacy of temporary and leased accommodation which is due for replacement by the mid-1990s and now on its last legs.

This creates both a danger and an opportunity. The danger is that the hump, and the spectre of decline hard on its heels, will make policy makers reluctant to carry out necessary replacement building.

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reverse. Higher education plant, particularly that part of it located in inner urban areas, could be sold off readily and possibly at a profit. Disposing of staff, however, would become a problem of the first order.

The Association of University Teachers is currently in the throes of negotiating an early retirement scheme to enable lecturers to retire voluntarily over the age of 55. But the DES discussion paper makes it clear that early retirement, redeployment and natural wastage are unlikely to be enough to provide the necessary redundancies if teacher numbers were allowed to rise and fall with the flow of students. The recruitment in the 1960s and early 1970s of large numbers of young staff has resulted in a predominantly youthful lecturing population in both universities and polytechnics. In the 1990s the great majority of staff presently in higher education will still be in their prime and many of them will be under 50 years old.

Redundancies would, of course, be expensive in money and morale. They might also lead to extraordinary legal tussles as university staff are forced to tense on the abolition of their tenure agreements.

When then are the prospects for expansion and contraction in line with the upsurge and fallback in student demand? The evidence seems to be that while it would be easy to acquire staff it would be difficult to build accommodation in the same proportion to the increase in student numbers. The time needed to build a unit for 1,000 students or more exceeds six years. Some institutions, with land and plans already in their pockets, might be able to cut the lead-time to four years. Nevertheless, even a rapid building programme undertaken immediately would only begin to reach fruition by the time student numbers reach their (central estimates) peak of more than 600,000 in 1985.

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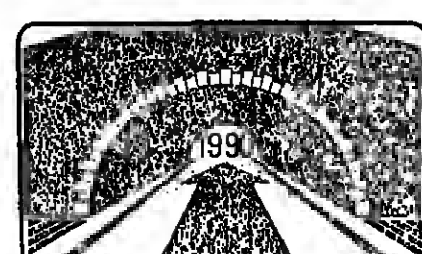
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is to make the entire system—in at least the expanded 1981 system—work harder. The document estimates that on this basis accommodation for an extra 400,000 students in each of the peak years would require a 7 per cent increase in accommodation standards or unit teaching costs. The proposal is controversial because it immediately raises the problem of negotiating a deterioration of working conditions with the lecturers' unions.

Opposition to the proposal can be divided into two related parts. One is that it is unreasonable and impractical to expect academics to cope with a bigger teaching load than the present one. The other is that by doing so, and by overloading existing accommodation, the quality of higher education on offer will decline to an unacceptable level.

The bare bones of a DES defence of the proposal are contained within the discussion document. It claims that a 7 per cent deterioration in staffing standards would not produce an overall ratio higher than the 10:1 proposed for 1981 in the 1972 White Paper and never explicitly renounced by governments since then. But this claim is likely to be fiercely contested by the teaching unions. For one thing, the DES estimate of existing ratios, 8.9:1 in the universities and 8.4:1 in the maintained sector—is not universally accepted. For another, the discrepancy in ratios, institution by institution and subject by subject, is a factor about the practicality of following a further deterioration in standards without major changes in subject distribution.

Actual staffing ratios in individual subjects' main institutions already range from 4:1 in some departments to 20:1 in others. Even if the DES is right that a 7 per cent squeeze would not exceed a global ratio of 10:1, there is no doubt that it would spell disaster locally on those grounds alone the proposal will be bitterly contested by the unions, although there is the possibility of avoiding their agreement to stretch standards during the hump to exchange for promises of security in the subsequent fallback.

Union agreement would also be needed to implement Model C's proposals for longer working hours, longer terms and full-time years. These approaches are, in any event, unlikely to be dramatically effective. Experiments with four-year years—at Cranfield college, for example—show that they result in increased maintenance and staffing costs, and present a serious strain on laboratory and workshop equipment. In the public sector teachers are likely to argue that the universities, with shorter terms, should take the burden of changes of this nature. University teachers, on the other hand, could reasonably argue that bigger teaching loads would erode time for research and thereby undermine academic quality.

The two assumptions embedded in Model A—that Robbins must be retained and that the system is working to its capacity or present limits—have been challenged by Models B and C respectively. Both argue that it is possible to alter the size of supply and demand for higher education. Models D and E, on the other hand, consider radical changes in the product itself, and in this respect they turn an educational rather than logistical judgement.

This is particularly so in the case of the two-year courses proposed in Model D, but the possibility of deferred entry is also likely to be rejected for educational reasons. Given the central projection of a 14,000 applicants to defer entry—with clear implications for the employment market.

There is, then, no outstanding candidate among the DES models to emerge as the educational reform of the 1990s. The logical dilemma posed in the discussion document, that in the long run that may not matter. The hump may not be as high as the central projection forecasts. Better still, it may not prove to be a hump at all, but a limitless ascent into the misty liberal millennium of Model E.

## Australia

### Vice-chancellors angry over cost of military academy

from John Kirkcaldy

SYDNEY

What might be Australia's last university to be built this century is already a controversial topic. The proposed university, to be called Casey, is to be a defence force academy, sited near the military college, Duntroon, in Canberra.

At present, the plans are that building should start within the next eighteen months and that it will eventually have a student population of 1,240.

The cost of this enterprise is A\$49.00m in February, 1977, price levels and a growing number of academics are questioning whether this represents value for money.

The figure constitutes almost double the total capital allocation (A\$27.00m) for the next three years that the Tertiary Education Commission recommended in its recent report for all of Australia's other 19 universities, which teach approximately 144,500 students.

A Bill establishing the university is before parliament and the parliamentary Standing Committee on Public Works is hearing evidence. There seems little chance that it will not become law unless there is a drastic governmental reappraisal.

What has incensed many academics is the general economic background. The TEC report recommended that real growth in tertiary education be reduced from 2 per cent in 1976-77 to 1.3 per cent for the 1979-81 triennium.

The report also recommended that universities and colleges of advanced education (CAES) should make savings of about 5 per cent over the next three years, while accepting slightly increased student numbers. Most Australian vice-chancellors seem to feel that the green light for Casey is a foregone conclusion but there is evidence of a rearguard action. A submission to the parliamentary

standing committee by Australian University leaked recently indicates some of the depth of feeling.

It was prepared by the university's vice-chancellor, Professor Ian Stranks, after the passing of a governing council resolution which deplored the proposal of the federal government to build a defence academy, to be called Casey, at Duntroon, in Canberra.

The submission says that it is "gravely concerned" at the proposal to replace the arrangements for the education of service officers in existing universities and colleges with a single defence academy purporting to "provide a university education in a military environment". It states that the education provided would be "ineffective and inappropriate".

"In our democratic society, it is crucial that the potential leaders of the nation's military forces should be exposed to a whole range of community attitudes and ideas," the submission concludes.

The basic concept of the defence force academy is to replace the degree stream courses for the Royal Military College, the RAAF Academy and the RAN college, which are all at present attached to existing universities.

The controversy comes at a time when universities are fighting hard against cutbacks. Professor Rupert Myers, chairman of the Australian vice-chancellors' committee (AVCC) recently criticised the TEC report for the 1979-81 triennium. Professor Myers, vice-chancellor of the University of New South Wales, said that the proposed provision for building and associated works was "too low".

"The AVCC draws attention to the shortage of accommodation, especially in new, developing universities, to the general deterioration of facilities and to the difficulties the universities face in modifying and adapting older buildings to changing activities," he commented.

AVCC particularly criticised the TEC's rejection of the Universities Council's recommendations on funding.

## Ireland

### Industry 'not getting money's worth'

from Paul McGill

DUBLIN

The Republic of Ireland's industrial training authority, ANCI, has come under attack from employers. The president of the Construction Industry Federation, Mr Richard Keating, warned that the industry may set up its own training scheme unless ANCI's apprentice programme becomes "more realistic" within the next year.

Employers complain that they are not getting their money's worth because 50 per cent of the apprentices leave the industry after serving their time and that ANCI trainers lack discipline. Mr Keating objected to the compulsory release of apprentices for educational courses and claimed that this was discouraging small builders from taking apprentices.

Last month several hundred apprentices marched on ANCI's headquarters to protest at their failure to protect trainees who were being made redundant. The march was organized by the Electrical, Electronic, Telecommunication and Plumbers Union and the Union of Students in Ireland.

By law, an apprentice cannot be dismissed without the consent of ANCI and that consent has never yet been given. Nonetheless, as many as 2,000 apprentices have been sacked over the past few years and the authority has never taken action against the offending firms, claiming that many of them were in severe financial straits.

The training body has also been criticized for failing to ensure that young craft workers receive the educational release they are entitled to and for failing to implement the log book system, designed to ensure that apprentices receive training in a variety of skills.

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## West Germany

### Ministry increases funds for energy research

by Günther Kless

West Germany's Federal Ministry of Research and Technology has announced that for 1978 it will increase its budget for energy research by 17 per cent over 1977.

A substantial part of the increase—some DM120m—is to be devoted to the government's "programme for investment in the future", especially in the field of non-nuclear energy research.

In fact 38 per cent of the total funds at the disposal of the ministry will go to applied energy research and the development of energy technology. DM1,456m is to be spent on nuclear energy research, especially in the field of fast reactors. This includes the DM1,200m federal share of the Karlsruhe and Jülich nuclear energy centres.

It is particularly significant that the government's Budget Committee has now released the DM1,200m earmarked in 1977 for further development at Karlsruhe of the fastbreeder technology. This sum was blocked last year by the committee in response to public concern about the environmental hazards of nuclear energy plants.

Energy research is part of one of the major research policy objectives of the federal government—modernizing the economy—i.e. most of the projected expenditure of DM580m in data processing, communications, and documentation.

## Holland

### Scientists 'open for business'

from John Richardson

A















## BOOKS

## Towards a new regional geography

**Models of Cities and Regions: theoretical and empirical developments**  
edited by A. G. Wilson, P. H. Hees, and C. M. Leigh  
Wiley, £12.75  
ISBN 0 471 99540 1

Since the arrival of Alan Wilson at the geography department of Leeds University in 1970, that institution has been a leading centre for mathematical modelling in geography and planning. This book reports on the empirical applications of this mathematical modelling to West Yorkshire, though it is also concerned with general issues such as data and calibration problems.

After a brief introduction to the approach and models, chapter two describes the theoretical advances that have resulted from the empirical applications subsequently described. Nearly all the empirical applications are based solely upon using secondary data sources, so they illustrate how these models can

be used without any special data collection. The success of the models varies, however, and the economic modelling is particularly disappointing. In chapter four after a quite heroic battle against data inadequacy we are left with a "learning" rather than forecasting exercise, while chapter eight, an amalgam of quantitative descriptions of the economic geography of West Yorkshire, involves no modelling of any substance and seems out of place in this volume. It is a criticism of some importance that the weakest sections of the book concern the economic basis upon which cities and regions exist.

The poorer showing of the economic modelling continues when the theoretical advances identified in chapter two are considered. The particular features highlighted are the introduction of accounting principles into demographic modelling, the integration of some linear programming and entropy maximising models and progress made in disaggregation. It is of course true that each of the above advances would have occurred or did occur independently of any empirical applica-

tions so it is not clear how they imply such advances derived from the particular empirical illustrations of this book. Whether these advances represent "considerable progress towards the construction of a comprehensive urban model" is clearly debatable.

This book may be criticised at two distinct levels. First the calibration of the empirical applications is quite informal. The rigour of the mathematical modelling gives way to many ad hoc research decisions when the data are confronted. I wonder what use is a table where nearly half the predictions have an error of over 25 per cent. Data inadequacy is given as an excuse although there is an indication of how the models would be assessed even if ideal data sets were available.

At a second level the book falls into the familiar planner's myth of confusing the term "comprehensive" with a combination of the particular topics of interest that happened to have been identified. For any model of the city in even the title "comprehensive" it must attempt much more than a linking together of sub-models described

by physical processes may be economic and political access to urban resources? On the positive side, this book represents what is probably a unique contribution to urban studies with its application of models to a single urban region. Nevertheless there is no synthesis of ideas, findings or models. The comprehensive model remains a long way away. Cross-referencing between chapters, even where they both produce similar predictions, are left to the reader. Certainly regional geographers will not see this as providing a new "regional geography whose basis is a set of quantitative models" despite the fact that the book's title is "Models of Cities and Regions". Rather, this book will be of interest to urban geographers and planners as a more convenient introduction to what has been going on at Leeds geography department in the last few years than that already available in the department's own two hundred or so working papers.

Peter J. Taylor

## Continental drifter

**The Revolution of North America**  
(revised edition)  
by Philip H. King  
Princeton University Press, £10.50  
ISBN 0 691 8189 1 and 8191 X

Philip H. King, recently retired from the staff of the US Geological Survey where he was responsible for the production of the tectonic and geologic maps of the United States, has written a graduate seminar in tectonics while he was visiting professor at the University of California, Los Angeles. The book is a distillation of his graduate seminar, undergraduate lecture course, and his own research. It is a book of the first edition of this book, the last of the geological profession whether professor, amateur, or student. It was illustrated with maps, diagrams, and sketches. It was very well written, geologically sound and entertaining, and it was what through its illuminating comments, geologic and geographical, of wider knowledge than the evolution of geologic and the processes of geologic would suggest. Copies were first sold in 1976 after five years.

## Model-maker

**Interaction Models**  
by N. L. Higgins  
Cambridge University Press, £4.50  
ISBN 0 521 21770 9

This book is based on a series of lectures given at Royal Holloway College, London, in a mixed audience of physicists and mathematicians, and is written in such a way as to be intelligible to both groups. The primary concept studied is that of an "interaction model" which includes its examples which physical situations, such as the Ising model of ferromagnetism, in these applications, the atoms or particles of the system under consideration are represented by the vertices of a linear graph, and the interactions between them are represented by the edges of the graph. The graph theory and the partition functions which arise in statistical mechanics.

The book has five chapters: preface, in which the mathematical (graph-theoretical) and physical background is outlined; methods in which some of the mathematical apparatus used in the discussion of interaction models and their transition points is introduced; theory, where flows in graphs and the duals of models are considered; expansions, featuring subgraph counting problems and cluster expansions; and prospects, in which the author discusses the extent to which the present state of knowledge is incomplete, and speculates on some of the topics which may play a role in the future. The author is to be congratulated on producing such a clearly written introduction to an area which ties together so many different disciplines. At a time when research is becoming ever more specialist in nature, a book such as this is surely to be welcomed.

Robin J. Wilson

## Geological riches of India and Africa

**Environmental Change**  
by A. S. Goudie  
Oxford University Press, £7.50 and £3.95  
ISBN 0 19 874073 5 and 874074 3

This book attempts to "show how the physical environment and landscape on the Earth have changed during the time that man has been living on the Earth". It is intended as a basis for all studies of current processes or landforms and is aimed at first and second-year students of geography, although most of its material is geological in inspiration.

Dr Goudie has done an invaluable job in bringing together data on environmental change, primarily for the Quaternary period, from a very wide variety of sources. This is particularly important for students far from all the geological epochs, this has

stimulated work from the greatest range of disciplines because of a variety of techniques which can be applied to it. However, for research workers, the greatest value of the book is not to introduce new techniques, as are the relationships between observation and inference in general—but to introduce a wealth of information from geographical areas such as India, Africa and Australia which are often ignored by workers in Western Europe and North America.

There are six chapters, the first a rather thin introduction to techniques and sources of information about the Quaternary, followed by chapters on the Pleistocene in northern and southern Africa and in the tropics and sub-tropics, environmental change during the Holocene and the last few centuries for which meteorological records exist, sea-

level changes in the Quaternary, and the causes of climatic change. A bewildering amount of data is presented, but one of the virtues of which must scientists work is that it is possible to reduce a vast amount of data to a manageable size. The discussion of climate, and the period of instrument records, is done through rainfall and temperature statistics, which reflect local changes, rather than by discussing the global circulation pattern.

None the less, although the book does not succeed in being a "comprehensive" survey, it is a very useful and interesting introduction to the subject. It is a pity that the author's name is not more prominent in the title, for a valuable compilation and organization of the fascinating array of information which Goudie has gathered together.

G. S. Boulton

## Much bonding

**Advanced Organic Chemistry**  
Part 1: structure and mechanisms  
by F. A. Carey and R. J. Sundberg  
Plenum Press, each part £24.88 (hardback) and £7.87 (paperback)  
ISBN 0 306 35116 1 and 55003 9;  
35117 X and 25004 7

It is a pleasure to be in the position of making an introduction which should be of lasting benefit to both parties. Carey and Sundberg have written here a pair of books which take over where the basic organic texts such as Roberts and Caserio, or Morrison and Boyd, are beginning to flag, and carry through the story of structure, mechanism, and synthesis to a successful end. The result is a book which is both a well-organized and a well-written introduction to the subject of organic chemistry.

Part A deals with structure and mechanism. Nothing on this scale has been attempted since Gould's book in 1959, and most of Carey and Sundberg's references are more recent than that. The early chapters lay the structural basis, dealing with the valence bond and molecular orbital pictures of bonding, with chirality, and with conformational and stereochemical effects. The general methods of investigating reaction mechanisms are described, and then the remaining three quarters of the book deals with the fundamental organic mechanisms: nucleophilic substitution, polar addition and elimination, the formation of carbocations, the reactions of carbanions, aromaticity and electrophilic substitution, concerted reactions, photochemistry and free radical reactions.

Part B then assumes a knowledge of this structural and mechanistic foundation and describes the applications of organic reactions in synthesis, the emphasis being placed on the type of reaction rather than the functional group. A similar approach was used 15 years ago by Fuson in *Reactions of Organic Compounds*, but the present book takes a more

mechanistic approach, and in the intervening years the subject has changed as much as London's landscape.

The first chapters deal with the formation of carbon-carbon bonds by the alkylation of enols, and by attack of nucleophilic carbon on a carbonyl group. Subsequent sections then cover addition reactions of carbon-carbon multiple bonds, the reduction of functional groups, organometallic compounds, cycloadditions and intermolecular rearrangements and eliminations, aromatic substitution reactions, carbene and carbenoid-like intermediates, and oxidations.

In this book a lot of the information is presented in tabular or schematic form, physical principles are illustrated with worked examples, and each chapter carries a selection of problems taken from the recent literature. Each volume contains about 2,000 references to English language books and journals, and one of the uses of these volumes will be as a valuable guide to the recent literature in mechanistic and synthetic organic chemistry.

Apert from a few typographical errors, the formulae and figures are excellent, and the arguments and explanations are lucid and concise. Mechanism and synthesis are so interrelated that I often find it impossible to present them separately in the way Carey and Sundberg have achieved. On the whole, this is a very good book, and it is admirable that one is sometimes left wondering which volume to pick up to find a particular topic. Why, for example, should reactions involving radical intermediates appear in Part A, or allylic oxidation by triplet oxygen in Part A, and by singlet oxygen in Part B?

It is many years since I have read a new organic text with such pleasure and I recommend it to anyone involved with organic chemistry at this level.

A. G. Davies

## Compound interest

**Heterocyclic Chemistry** (second edition)  
by J. A. Joule and G. P. Smith  
Van Nostrand Reinhold, £12.00 and £5.25  
ISBN 0 442 30211 8 and 30212 6

An Introduction to the Chemistry of Heterocyclic Compounds (first edition)  
by R. M. Adams  
Wiley-Interscience, £17.35  
ISBN 0 471 36362 2

Heterocyclic chemistry traditionally has been regarded as an essential topic in undergraduate courses. This is a reflection of the enormous importance of heterocyclic compounds, both in living systems and in many areas of industrial organic chemistry. The number of known heterocyclic systems is vast, and their variety is bewildering to a student unfamiliar with the subject. This is why many students find the subject difficult, so good introductory monographs are needed as a guide through this mass of information and to highlight the important features.

These two books both set out to present heterocyclic chemistry at an undergraduate level. The fact that both have appeared in new editions testifies to their past success. Dr Joule and Dr Smith restrict their coverage of heterocyclic chemistry almost entirely to the so-called "aromatic" systems, such as pyrrole, pyridine, imidazole, and their analogues. They argue, with some justification, that the properties of other heterocyclic compounds can be deduced from a general knowledge of organic chemistry, and that there is no need to deal with them separately at this level. After discussing the principles of aromaticity, and general methods of synthesis, the authors introduce each of the major systems in turn. A short chapter outlining the main features of the chemistry of each system is followed by a more detailed description of the most important derivatives. This allows the student to grasp the essentials without being overwhelmed by detail.

The book achieves a nice balance between theory and fact, and most of the important derivatives of each system are introduced at some stage. In the chapter on pyridine, for example, not only the simple derivatives are discussed, but the structures of chlorophyll, haem and vitamin B<sub>12</sub> are illustrated and a representative synthesis of a simple porphyrin is described. This synthesis is new to the second edition. In other respects, the book has changed little from the first edition and the few changes are not wholly successful: for example, there are new sections on the synthesis of heterocycles by means of pericyclic reactions and on photochemistry which are too brief to allow any clear picture to emerge. Nevertheless, this remains a first-class introductory text for students.

Dr Adams' text is much more comprehensive. It deals with representatives of all the major classes of heterocyclic compounds, and some of the less familiar ones, containing from three to nine atoms in the ring. There are copious references, not only to reviews but to original papers. The book contains most of the information presented by Joule and Smith and a great deal in addition, on topics ranging from penicillin biosynthesis to the autoxidation of oxepines. The structure of the text makes few concessions to beginning students: it lacks the systematic and detailed exposition of basic principles which is the strong feature of Joule and Smith's book. The author deliberately avoids speculative discussion of mechanism, but there are places where a little speculation would help the reader to understand the chemistry, for example in Gassman's synthesis of indoles from aniline on page 208. Advanced students and experienced chemists will continue to find this book invaluable as an up-to-date, concise and accurate reference work, and an excellent lead into the more detailed literature of the subject.

T. L. Gilchrist

## Fluidization

**Proceedings of the Second Engineering Foundation Conference, 1978**  
Edited by J. F. Davidson and D. L. Kleihrns  
Fluidization finds many applications in the chemical and metallurgical industries, and in fossil fuel processing. The contributors to this volume cover many aspects of the subject and the book thus presents an up-to-date and comprehensive coverage of the subject written by experts. £16.00 net

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**Second Edition**  
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## Physical Chemistry

P. W. Atkins

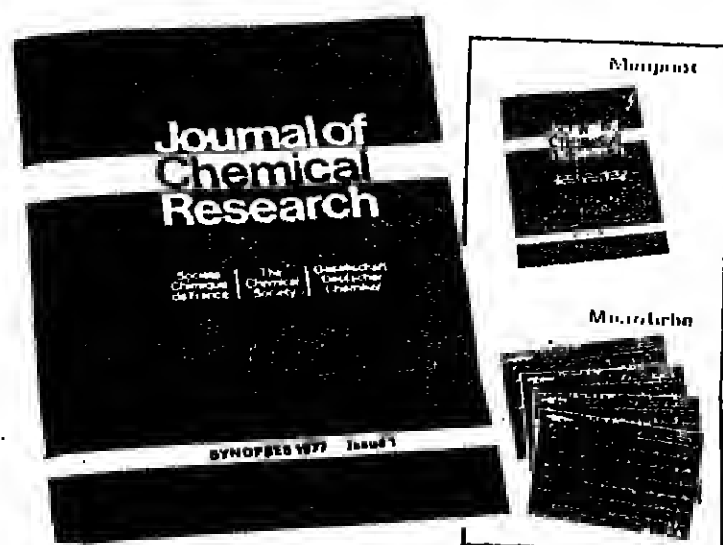
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## Universities continued

## THE OPEN UNIVERSITY

## PART-TIME TUTORIAL AND COUNSELLING STAFF

Applications are invited for the following part-time posts for the 1978 academic year (to take effect from January 1979):

## COURSE TUTORS, TUTOR COUNSELLORS AND ASSOCIATE STUDENT COUNSELLORS

In 1978 the University will be offering 121 courses for which tutor counselling is required in six broad areas: Arts, Educational Studies, Mathematics, Science, Social Sciences and Technology (including a Technology Project Course in which project supervisors will be recruited in 1979). The courses are based on an integrated structure of correspondence assignments, radio and television broadcasts and a regionally organized tutorial and counselling system. COURSE TUTORS are responsible for counselling on and grading students' written assignments, for replying to queries about students' work and for conducting tutorials, normally at local study centres.

TUTOR COUNSELLORS have duties similar to Course Tutors in relation to the tuition of a group of undergraduate students on one of the five Foundation courses. They also have counselling responsibilities for a larger group of undergraduate students on both Foundation and higher level courses, where they are required to give advice to individual students and to help in organizing discussion groups at local study centres.

ASSOCIATE STUDENT COUNSELLORS are responsible only for the counselling of students on the University's Associate Student Programme. These students will be following a wide variety of courses available in this programme. Associate student counsellors will be matched to a local study centre but their contact with students will take a variety of forms dependent upon geographical area and spread of students.

The kind of work for University staff varies according to individual contracts, but on average will involve perhaps one evening per week or its equivalent for most of the year. Appointments of new staff will, in the first instance, be for one year.

Applicants should have a minimum of graduate equivalent, recent teaching experience in further education or higher education is highly desirable. For certain courses, individual experience would also be an advantage. To obtain application forms and further particulars send a POSTCARD to the Tutor Office, 1, Milton Keynes, MK7 6AU. Early application is advised and completed application forms should be submitted to one of the University's Regional Offices by the closing date of Friday, 16th June.

It should be noted that it is likely that existing members of the tutorial and counselling staff will be redeployed to many of the posts on continuing courses. There have been no previous recruitments, however, for 15 courses to be presented for the first time in 1978.

[Note: Existing members of the University's part-time tutorial and counselling staff will be sent application forms before the end of May as a matter of course.]

University of Bristol

## School for Advanced Urban Studies

## Research in Public Policy Studies

Applications are invited from candidates who wish to carry out research in the field of public policy leading to the MSc and PhD degrees in the Faculty of Social Sciences.

The School is keen to attract students interested in pursuing the analysis of public policy processes in general but candidates will also be expected to have an interest in one of the following: housing, employment, transport, the physical environment, social services, social security or health.

There is no closing date for applications, but students wishing to be nominated for SRC post awards, for which the research training programme is recognized, must have completed their application by 30 June.

Further details and application forms are obtainable from: Registration Secretary, School for Advanced Urban Studies, Rodney Lodge, Orange Road, Bristol BS8 4EA.

## THE QUEEN'S COLLEGE, GLASGOW

Applications are invited for the following posts as from 1st September, 1978 (or as soon thereafter as possible):

## LECTURER IN FOOD SCIENCE

## LECTURER IN ACCOMMODATION STUDIES/BUSINESS STUDIES

Salary for A is £14,000 to £17,100 (per year) plus 10% per annum. Further details and forms of application may be obtained from: Registrar, The Queen's College, Glasgow, G3 6LP. In the completed form should be returned not later than Friday, 30 June 1978.

## UNIVERSITY OF THE WITWATERSRAND JOHANNESBURG, SOUTH AFRICA

Applications are invited for the following posts:

## GRADUATE SCHOOL OF BUSINESS ADMINISTRATION

## CHAIR OF ORGANISATIONAL BEHAVIOUR

The Professor of Organizational Behaviour will be involved in the following activities: the organization and teaching of courses in organizational behaviour on the MBA, Postgraduate, Personnel Management and Executive Development Programmes, and participation in research supervision.

Identify, applicants should have a higher degree in the behavioural sciences; teaching and research experience in organizational behaviour; practical experience in organizational design and development.

BALARY: Commencing salary will be determined according to qualifications and experience on the scale: R10,800 by R12,800 by R13,800 by R14,800 by R15,800 by R16,800 by R17,800. A 15% per cent pensionable allowance is payable on these scales, plus a further non-pensionable enhancement, bringing the total emoluments to the maximum range of R14,555 to R10,018 (C1 equals R1.57 approx.). Ref. L/289/a.

## DEPARTMENT OF DIVINITY

## SENIOR LECTURER

## (Old Testament Studies)

Applications are invited for appointment to the above post. Applicants should hold a doctorate (or be close to obtaining it) in Hebrew and/or Biblical Studies, with major emphasis on Old Testament Studies.

Salary will be determined according to qualifications and experience on the scale R2,400 by R3,000 by R3,600 by R4,200 by R4,800 by R5,400 by R6,000 by R6,600 by R7,200 by R7,800 by R8,400 by R9,000 by R9,600 by R10,200 by R10,800 by R11,400 by R12,000 by R12,600 by R13,200 by R13,800 by R14,400 by R15,000 by R15,600 by R16,200 by R16,800 by R17,400 by R18,000 by R18,600 by R19,200 by R19,800 by R20,400 by R21,000 by R21,600 by R22,200 by R22,800 by R23,400 by R24,000 by R24,600 by R25,200 by R25,800 by R26,400 by R27,000 by R27,600 by R28,200 by R28,800 by R29,400 by R30,000 by R30,600 by R31,200 by R31,800 by R32,400 by R33,000 by R33,600 by R34,200 by R34,800 by R35,400 by R36,000 by R36,600 by R37,200 by R37,800 by R38,400 by R39,000 by R39,600 by R40,200 by R40,800 by R41,400 by R42,000 by R42,600 by R43,200 by R43,800 by R44,400 by R45,000 by R45,600 by R46,200 by R46,800 by R47,400 by R48,000 by R48,600 by R49,200 by R49,800 by R50,400 by R51,000 by R51,600 by R52,200 by R52,800 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## Polytechnics continued

## ULSTER COLLEGE

## THE NORTHERN IRLAND POLYTECHNIC

## Centre for Management Education

## LECTURER II/SENIOR LECTURER

Personal Management/Organisational Behaviour. The Centre has a vacancy for a Management Teacher, qualified in one of the Behavioural Sciences, with an experience-based knowledge of Personnel Management. Applicants should hold appropriate academic qualifications, should have had experience in industry or the public service and should preferably have had some relevant teaching experience.

## TEMPORARY LECTURER II

(one-year appointment)

Personal Management and Industrial Relations. The Centre for Management Education requires a suitably qualified and experienced person to take part in the work of the Industrial Relations Unit for a period of twelve months. The work will involve teaching on both certificated courses and in-plane short courses. Candidates should have had outside industrial and academic experience.

## Faculty of the Arts

## TEMPORARY LECTURER II/SENIOR

## LECTURER

Ceramics. Applications are invited from suitably qualified artist/designers to contribute on a short or long-term contract to the BA Honours Degree Course in Ceramics. Contributions of special interest are desirable within the following subjects:-

1. Surface decoration and 2D ideas as applied to ceramics
2. Industrial processes and their current application
3. Personal work of high quality in any particular aspect of making

4. Technical aspects and kiln building. Applications will be considered from persons wishing to teach for the academic year 1978/79 or for a term or half term. Appointments for short blocks of teaching may also be considered.

Salary will be payable on an appropriate point on the Lecturer II or Senior Lecturer scale having regard to the qualifications and experience.

SALEARY SCALES: Senior Lecturer £5523-£6447/£6909

Lecturer II £3744-£5285

Salaries under review. The Polytechnic is a direct grant institution with an independent Board of Governors. It opened in 1973 and now has a student population of some 7300. It has extensive new purpose-built accommodation including 750 residential places on the 14-acre campus overlooking the sea at Jordanstown, a pleasant and quiet residential area. There is a scheme of assistance with removal. Further particulars and application forms, which must be returned by June 30th, may be obtained by telephoning Whiteabbey (0231) 65131, ext. 2243 or by writing to The Establishment Officer, Ulster College, The Northern Ireland Polytechnic, Shore Road, Newtownabbey, Co. Antrim BT37 0Q5.

## Preston Polytechnic

Applications are invited for the following posts:

## Lecturer II/Senior

## Lecturer in Industrial Sociology

## Lecturer II in Social

## Administration

(specialist in personnel social services)

## Lecturer II in Politics

(major interest in public administration)

## Lecturer II in

## Secretarial Studies

(2 Posts)

Salary scales (under review):

Senior Lecturer £5523-£6447-£6909;

Lecturer II £3744-£5285.

Application forms and further particulars may be obtained from the Chief Administrative Officer (Staffing), Preston Polytechnic, Corporation Street, Preston PR1 2TQ, to whom completed applications should be returned by May 26th.

## The POLYTECHNIC

## WOLVERHAMPTON

## Deputy

## Librarian

and Head of Reader Services

(new post)

Applications are invited from qualified librarians with wide experience at a senior level in academic libraries.

Salary: Principal Lecturer in the £5523-£6447-£6909 (under review)

Further particulars and application forms, from The Establishment Officer, The Polytechnic, Wolverhampton WV3 2LT.

## THE POLYTECHNIC

## HUDDERSFIELD

Head of Department

Department of Further Education Staff Development. Ref. ACA/205/178

## PRINCIPAL LECTURER OR SENIOR

## LECTURER IN METHODS OF TEACHING

## MANAGEMENT SUBJECTS AND

## EDUCATIONAL MANAGEMENT

Applications are invited from graduates, preferably with a higher degree, who are qualified teachers with experience in further education. The teaching programme of the person appointed will include:-

1. Methods of teaching courses in Management subject to pre-service and in-service students courses.
2. The Management of Education module in the Diploma in F.E. and on specialist short courses.
3. Experience of teaching on Masters courses and of supervising research will be important additional qualifications. A principal lecturership is available for a suitable applicant. Staff are expected to undertake activities, including research, in addition to teaching duties.

Salary: PL £8,432 to £7,134 (bar) to £8,070 per annum.

SL £5,523 to £8,447 (bar) to £8,909 per annum.

All inclusive of salary supplements.

Further details and application forms, which should be returned by June 2, 1978, from the Establishment Officer, The Polytechnic, Queensgate, Huddersfield HD1 3DH (Telephone 0484 22266, ext. 2220).

## Courses

## Bristol

## Polytechnic

## BSc Technology

## with Industrial

## Studies

A four year sandwich course combining

Engineering and Business Studies.

Entry requirements are 'A' level Mathematics

and one other relevant 'A' level e.g. Economics.

(Or equivalent of ONC/ONV/ONV/Technology).

Further details from:

Admissions Officer, Bristol Polytechnic,

Colston House Lane, Frenchay, Bristol BS16 1QV.

Tel: (0272) 056261

## PRINCIPAL

## LECTURER IN LAW

£7,047-£7,818 (Bar)-£8,844

The successful applicant will be responsible for the preparatory work leading to the establishment of the course for the proposed new Part II examination of The Law Society and for the administration of the course subsequent to its establishment. Applicants should possess an honours degree in law, have relevant teaching experience and be qualified solicitors.

Further details and form of application from The Chief Administrative Officer, Trent Polytechnic, Burton Street, Nottingham. Closing date 31st May, 1978.

## TRENT

## POLYTECHNIC

## NOTTINGHAM

## KINGSTON POLYTECHNIC

## KINGSTON REGIONAL MANAGEMENT CENTRE

## Applications are invited for three posts at LECTURER II/

## SENIOR LECTURER level:

## Lecturer in BUSINESS POLICY

## Lecturer in BEHAVIOURAL SCIENCE

## Lecturer in MANUFACTURING POLICY

## and OPERATIONS MANAGEMENT.

Successful candidates will join a staff team teaching on a range of postgraduate and professional courses with opportunity for undertaking consultancy and applied research projects. Candidates should have a good honours degree or equivalent professional qualification and substantial experience in industry. Salary range £4101-£7572 £4097 London allowance.

Further details and application forms (to be returned by 1 June) from Academic Registry Dept. A9, Kingston Polytechnic, Purvys Road, Kingston upon Thames KT1 2EE, 01-872 7800.

## LANCHESTER

## THE POLYTECHNIC

## FACULTY OF ENGINEERING

## DEPARTMENT OF SYSTEMS

## AND CONTROL

## Applications are invited for

## the post of

## LECTURER II/SENIOR

## LECTURER IN CONTROL

## SYSTEMS

## AND CONTROL

Applications are invited from graduates, preferably with a higher degree, who are qualified teachers with experience in further education. The teaching programme of the person appointed will include:-

1. Methods of teaching courses in Management subject to pre-service and in-service students courses.
2. The Management of Education module in the Diploma in F.E. and on specialist short courses.
3. Experience of teaching on Masters courses and of supervising research will be important additional qualifications. A principal lecturership is available for a suitable applicant. Staff are expected to undertake activities, including research, in addition to teaching duties.

Salary: PL £8,432 to £7,134 (bar) to £8,070 per annum.

SL £5,523 to £8,447 (bar) to £8,909 per annum.

All inclusive of salary supplements.

Further details and application forms, which should be returned by June 2, 1978, from the Establishment Officer, The Polytechnic, Queensgate, Huddersfield HD1 3DH (Telephone 0484 22266, ext. 2220).

## MANCHESTER

## THE POLYTECHNIC

## DEPARTMENT OF

## LANGUAGE

## TEACHING

## Applications are invited for

## the post of

## LECTURER II/SENIOR

## LECTURER IN

## LANGUAGE

## TEACHING

Applications are invited from graduates, preferably with a higher degree, who are qualified teachers with experience in further education. The teaching programme of the person appointed will include:-

1. Methods of teaching courses in Management subject to pre-service and in-service students courses.
2. The Management of Education module in the Diploma in F.E. and on specialist short courses.
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## LONDON, N.W.4

## THE POLYTECHNIC

## DEPARTMENT OF

## LANGUAGE

## TEACHING

## Applications are invited for

## the post of

## LECTURER II/SENIOR

## LECTURER IN

## LANGUAGE

## TEACHING

Applications are invited from graduates, preferably with a higher degree, who are qualified teachers with experience in further education. The teaching programme of the person appointed will include:-

1. Methods of teaching courses in Management subject to pre-service and in-service students courses.
2. The Management of Education module in the Diploma in F.E. and on specialist short courses.
3. Experience of teaching on Masters courses and of supervising research will be important additional qualifications. A principal lecturership is available for a suitable applicant. Staff are expected to undertake activities, including research, in addition to teaching duties.

Salary: PL £8,432 to £7,134 (bar) to £8,070 per annum.

SL £5,523 to £8,447 (bar) to £8,909 per annum.

All inclusive of salary supplements.

Further details and application forms, which should be returned by June 2, 1978, from the Establishment Officer, The Polytechnic, Queensgate, Huddersfield HD1 3DH (Telephone 0484 22266, ext. 2220).

## LONDON

## THE POLYTECHNIC

## DEPARTMENT OF

## LANGUAGE

## TEACHING

## Applications are invited for

## the post of

## LECTURER II/SENIOR

## LECTURER IN

## LANGUAGE

## TEACHING

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## LONDON

## THE POLYTECHNIC

## FACULTY OF ENGINEERING

## DEPARTMENT OF SYSTEMS

## AND CONTROL

## Applications are invited for

## the post of

## LECTURER II/SENIOR

## LECTURER IN

## CONTROL

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## LEICESTER

## THE POLYTECHNIC

## DEPARTMENT OF

## LANGUAGE

## TEACHING

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## LECTURER II/SENIOR

## LECTURER IN

## LANGUAGE

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## LONDON, E.C.3

## THE POLYTECHNIC

## DEPARTMENT OF

## LANGUAGE

## TEACHING

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## the post of

## LECTURER II/SENIOR

## LECTURER IN

## LANGUAGE

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## LONDON

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## DEPARTMENT OF

## LANGUAGE

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## Colleges and Institutes of Technology

## DUNDEE COLLEGE OF TECHNOLOGY

## Temporary Lecturer in

## Educational Technology

Applications are invited for this additional temporary post in a developing area of the college's work. The person appointed will be expected to contribute to post-graduate courses in educational technology and communications media, and to develop and supervise research work in these fields. The appointment will be for a period of two years.

Applicants should be suitably qualified, with a higher degree in educational psychology or educational technology, and have experience in the design of structured learning materials.

Salary, including supplements (as present under review), will be in accordance with the Dundee College of Technology Scale, 1978 (£5,523 to £8,909) with initial placement dependent upon approved previous experience. Financial assistance towards the cost of removal expenses may be payable.

Further particulars and forms of application are obtainable from the Administrative Assistant (Staffing), Dundee College of Technology, Bell Street, Dundee DD1 1HG, to whom completed forms of application should be returned not later than May 26, 1978.

## LOTHIAN REGIONAL COUNCIL

## NAPIER COLLEGE OF

## COMMERCE AND TECHNOLOGY

## HEAD OF DEPARTMENT



## Administration continued

## oxford polytechnic

### Temporary Senior Assistant Academic Secretary (PO1A £5,209-£5,770)

The post, involving responsibility for the administration of the Polytechnic Modular Degree Course, is available from mid-June until 10th November, 1978. There is a possibility of a permanent appointment in due course.

Application forms from The Administrator, Oxford Polytechnic, Oxford OX3 0BP.

## DURHAM

## THE UNIVERSITY

Applications are invited for a post of ADMINISTRATIVE ASSISTANT in the office of the Registrar and Secretary, located in the Registrar's Office, 10th Avenue, Durham, from August 1, 1978. The post will offer opportunities for a person willing to take a career in university administration and will cover a wide range of duties. Applicants should possess a good honours degree and should have previous experience in university administration. The successful candidate will be responsible for the day-to-day administration of the Registrar's Office and will be required to maintain a high standard of service to the University community.

## Colleges and Departments of Art

## SURREY

## COUNTRY LECTURER

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## Colleges of Higher Education continued

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## General Vacancies continued

OPEN UNIVERSITY  
PRODUCTIONS

Opportunities exist to join the teams of Open University Productions at the Production Assistant level. The successful candidates will work on all aspects of the production of television and radio programmes for Open University courses. Production training will be given.

## HUMANITIES

There are three vacancies involving the Arts, Social Science and Educational Studies faculties. A good degree is essential and one post will be specifically for Economics.

## SCIENCE

There are two vacancies. Candidates should have an informed interest in Science, a good Honours Degree in Geology or a Biological Science and at least two years' post-university experience.

Salary: £5,060 p.a. (may be higher if qualifications exceptional) by £190 to £8,600 p.a. plus £400 p.a. for unsocial hours. Open University Productions is based at Alexandra Palace but is expected to move to Milton Keynes in 1991.

Write or telephone immediately for an application form and further particulars (enclosing addressed envelope and quoting reference number 78.G.2271-TH for Humanities and reference 78.G.2272-TH for Science) to: Appointments Department, BBC, London W1A 1AA. Telephone 01-580 4483, ext. 4819.

BBC

## COUNCIL FOR NATIONAL ACADEMIC AWARDS

## ASSISTANT SECRETARY

As a result of the appointment of the present holder to a senior position in an educational institution, applications are invited for the post of Assistant Secretary. The person appointed will have overall responsibilities for Finance, Personnel, administrative and support services and the management of the Council's premises. Some Committee work will also be involved.

Candidates must have a suitable academic and/or professional qualification and have had administrative experience at a senior level.

The salary on appointment will be within the scale £6 455 to £8,220 (main bar at £7,487), including London Weighting.

Further particulars of the post may be obtained from: Secretary (A&P), Council for National Academic Awards, 344/351 Gays Road, London WC1X 8BP, to whom applications giving details of qualifications and experience and mentioning the names of two referees should be submitted by May 31, 1988.

## OVERSEAS

## AUSTRALIA

ROYAL MELBOURNE INSTITUTE  
OF TECHNOLOGY LIMITEDLECTURUR IN  
PSYCHOLOGYFACULTY OF HUMANITIES  
AND SOCIAL SCIENCES

Applicants should have a Higher Degree in Psychology and interest and experience in the field of the Psychology of Vocational Behaviour. This role includes such areas as occupational choice, theories of career development, career development in organisations, careers education, career counselling, changes in the structure and meaning of work.

Salary within the range \$A14,985 - \$A19,684 per annum.

Rel. No. 143/16/AN Closing Date 29.9.78  
The position is available from 2 January 1979, teaching duties commence in February 1979.

Interested applicants should discuss the position with Mr. O. Wittinglow, Principal Lecturer in Psychology, Faculty of Social Sciences, Department of Social Sciences, Loughborough University of Technology, Leicestershire, from 12.6.1978 until 12.7.1978.

Intending applicants should obtain a Schedule of Duties from the Staff Branch, R.M.I.T., Box 2476V, 300 P.O., Melbourne, 3001. Applications should be addressed to the Registrar.

THE BRITISH SCHOOL  
OF ARCHITECTURE  
IN JERUSALEM

Intending applicants for the following positions should send their curriculum vitae, references and a recent photograph to the Registrar, The British School of Architecture in Jerusalem, P.O. Box 100, Jerusalem 10000, Israel.

HAMBURG LANGUAGE  
SCHOOL

Applications are invited to teach in the English, French, German, Italian, Spanish, and American English departments. The school is a leading language school in Hamburg, Germany. Applicants should have good knowledge of the language and be able to teach at the university level. Applications should be sent to the Registrar, Hamburg Language School, 1, Schulstrasse, Hamburg 1, 20001.

THE NEW SOUTH WALES  
INSTITUTE OF TECHNOLOGY  
SYDNEY, AUSTRALIA

The New South Wales Institute of Technology is a corporate institution established to provide a wide range of professional courses for those entering or already employed in industry, government and technological fields. Applications are invited for the following academic positions in various Faculties.

FACULTY OF  
BUSINESS STUDIES

The Faculty of Business Studies currently offers a Bachelor of Business Degree with concentrations in Accounting, Marketing, Operations Management and Public Administration. In addition, the Graduate Diplomas in Accounting and the Graduate Diploma in Personnel Management/Industrial Relations were introduced in 1977 and it is anticipated that expansion of graduate courses will proceed in the near future. Total current enrolment in the Faculty approximates 2,800 students.

## Head, School of Finance &amp; Economics

The School anticipates offering an area of concentration within the Bachelor of Business Degree in Finance and Economics. A Graduate Diploma in Finance is being planned for introduction in the near future. The School will further be offering Finance and Economics subjects in other Graduate courses that are being offered within the Faculty of Business Studies.

The applicant should possess a doctorate for employment and should have had previous experience of teaching at the university level in the financial, accounting and management areas. This experience will have been obtained by lecturing and/or administering in a Faculty of Business Studies at a recognised university in Australia. It is desirable that the Head of the School will have had administrative experience in a university setting. The successful candidate will be expected to have a strong background in the financial, accounting and management areas. The position of Head of the School will be a full-time position with a salary in the range of \$12,000 to \$15,000 per annum, plus superannuation and other benefits. The successful candidate will be expected to have a strong background in the financial, accounting and management areas. The position of Head of the School will be a full-time position with a salary in the range of \$12,000 to \$15,000 per annum, plus superannuation and other benefits.

## Senior Lecturer in Accounting

Applicants for this position must possess a higher degree with a major interest in accounting and should preferably have an interest in the financial, accounting and management areas. This experience will have been obtained by lecturing and/or administering in a Faculty of Business Studies at a recognised university in Australia. It is desirable that the Head of the School will have had administrative experience in a university setting. The successful candidate will be expected to have a strong background in the financial, accounting and management areas. The position of Head of the School will be a full-time position with a salary in the range of \$12,000 to \$15,000 per annum, plus superannuation and other benefits.

## Lecturer in Accounting

Applicants for this position must possess a higher degree with a major interest in accounting and should preferably have an interest in the financial, accounting and management areas. This experience will have been obtained by lecturing and/or administering in a Faculty of Business Studies at a recognised university in Australia. It is desirable that the Head of the School will have had administrative experience in a university setting. The successful candidate will be expected to have a strong background in the financial, accounting and management areas. The position of Head of the School will be a full-time position with a salary in the range of \$12,000 to \$15,000 per annum, plus superannuation and other benefits.

## Visiting Lectureship in Accounting

Several visiting lectureships in Accounting will be available during the next three years for holders of a PhD or equivalent. The successful candidate will be expected to have a strong background in the financial, accounting and management areas. The position of Head of the School will be a full-time position with a salary in the range of \$12,000 to \$15,000 per annum, plus superannuation and other benefits.

## Senior Lecturer/Lecturer in Finance

Applicants should possess postgraduate qualifications in a major field of Finance and have had teaching experience. The successful candidate will be expected to have a strong background in the financial, accounting and management areas. The position of Head of the School will be a full-time position with a salary in the range of \$12,000 to \$15,000 per annum, plus superannuation and other benefits.

## Visiting Lecturer in Finance

The School of Finance and Economics has a position vacant for a Visiting Lecturer in Finance. The applicant should possess graduate qualifications in Finance and have had some teaching experience together with practical experience in business or government. The duties of the appointee will include lecturing in one or more subjects such as Financial Management, International Finance and Investment Analysis and Portfolio Management. The visiting lecturer could be appointed for a one or two-year period. Fees are payable on the basis of an annual salary plus superannuation and other benefits.

## Senior Lecturer in Industrial Relations

Applications are sought from graduates in the field of industrial relations, labour economics or other relevant fields. It is desirable that applicants will be undertaking or have completed postgraduate studies in industrial relations or a related field. However, consideration will also be given to applicants with relevant professional qualifications in the industrial relations field, but who do not have a university degree. The successful candidate will be expected to have a strong background in the financial, accounting and management areas. The position of Head of the School will be a full-time position with a salary in the range of \$12,000 to \$15,000 per annum, plus superannuation and other benefits.

## Lecturer in Economics

Applicants should have good academic qualifications including a higher degree. The appointee will probably have some postgraduate level experience in teaching/lecturing or in research. Preference will be given to applicants with a background in the field of industrial relations or a related field. However, consideration will also be given to applicants with relevant professional qualifications in the industrial relations field, but who do not have a university degree. The successful candidate will be expected to have a strong background in the financial, accounting and management areas. The position of Head of the School will be a full-time position with a salary in the range of \$12,000 to \$15,000 per annum, plus superannuation and other benefits.

## Lecturer in Business Administration

Applicants should possess an appropriate higher degree and should be well prepared to manage and administer a department. The appointee will probably have some postgraduate level experience in teaching/lecturing or in research. Preference will be given to applicants with a background in the field of industrial relations or a related field. However, consideration will also be given to applicants with relevant professional qualifications in the industrial relations field, but who do not have a university degree. The successful candidate will be expected to have a strong background in the financial, accounting and management areas. The position of Head of the School will be a full-time position with a salary in the range of \$12,000 to \$15,000 per annum, plus superannuation and other benefits.

## FACULTY OF ENGINEERING

The Faculty of Engineering comprises the Schools of Civil Engineering, Electrical Engineering and Mechanical Engineering. Each School offers undergraduate and graduate programmes leading to the award of Bachelor Degrees and Graduate Diplomas. Undergraduate programmes adopt co-operative education principles in which students are required to obtain significant periods of industrial experience concurrently with their academic work. The Faculty has established a close professional engineering association with industry and government.

## Principal Lecturer in Civil Engineering

The applicant appointed to this position in the School of Civil Engineering will be required to conduct lectures, supervise graduate and undergraduate projects and to develop postgraduate courses. The School offers Bachelor Degree Courses in Civil Engineering and Structural Engineering, Master Degree Programs in Civil Engineering and Structural Engineering, and a Doctoral Degree Program in Civil Engineering. The successful candidate will be expected to have a strong background in the financial, accounting and management areas. The position of Head of the School will be a full-time position with a salary in the range of \$12,000 to \$15,000 per annum, plus superannuation and other benefits.

## Lecturer, School of Civil Engineering

A lecturer in required by the School of Civil Engineering to conduct lectures, supervise graduate and undergraduate projects and to develop postgraduate courses. The School offers Bachelor Degree Courses in Civil Engineering and Structural Engineering, Master Degree Programs in Civil Engineering and Structural Engineering, and a Doctoral Degree Program in Civil Engineering. The successful candidate will be expected to have a strong background in the financial, accounting and management areas. The position of Head of the School will be a full-time position with a salary in the range of \$12,000 to \$15,000 per annum, plus superannuation and other benefits.

## FACULTY OF LAW

The Institute of Law commenced teaching in 1977 and offers courses leading to a degree in Law.

## Senior Lecturers/Lecturers

Applicants should possess a higher degree with a major interest in the field of Law and should have had teaching experience. The successful candidate will be expected to have a strong background in the financial, accounting and management areas. The position of Head of the School will be a full-time position with a salary in the range of \$12,000 to \$15,000 per annum, plus superannuation and other benefits.

FACULTY OF MATHEMATICAL  
& COMPUTING SCIENCES

The School of Mathematical Sciences offers two major courses: Mathematics and Computing Sciences. The successful candidate will be expected to have a strong background in the financial, accounting and management areas. The position of Head of the School will be a full-time position with a salary in the range of \$12,000 to \$15,000 per annum, plus superannuation and other benefits.

Principal Lecturer in Stochastic and  
Statistical Methods

The School of Mathematical Sciences offers two major courses: Mathematics and Computing Sciences. The successful candidate will be expected to have a strong background in the financial, accounting and management areas. The position of Head of the School will be a full-time position with a salary in the range of \$12,000 to \$15,000 per annum, plus superannuation and other benefits.

## Senior Lecturer in Industrial Relations

Applications are sought from graduates in the field of industrial relations, labour economics or other relevant fields. It is desirable that applicants will be undertaking or have completed postgraduate studies in industrial relations or a related field. However, consideration will also be given to applicants with relevant professional qualifications in the industrial relations field, but who do not have a university degree. The successful candidate will be expected to have a strong background in the financial, accounting and management areas. The position of Head of the School will be a full-time position with a salary in the range of \$12,000 to \$15,000 per annum, plus superannuation and other benefits.

The Agent-General,  
N.S.W. Government Offices,  
65 The Strand,  
London WC2N 5LZ ENGLAND.

## Overseas continued

OVERSEAS  
TEACHING POSTS

## LECTOR IN ENGLISH (YUGOSLAVIA)

University of Nis, required by late September, 1978, to teach English at tertiary level. Candidates preferably single, should have a degree in English or Modern Languages from a university in Britain. Salary: 5,000 New Dinars per month, plus British rate of exchange 35ND equals £1, plus British Council subsidy of £1,353 p.a. One year Minor Grant contract, renewable. 78 UU 72.

## LECTURER IN ENGLISH (GREECE)

Department of English, University of Thessaloniki. To teach English literature to university students. Some English language teaching may also be involved. Candidates, preferably single should hold an honours degree in English and a postgraduate teaching qualification and should have had at least three years' teaching experience. An M.A. degree would be desirable.

Salary: Drachmas 23,000 per month (£330 at current rate of exchange).  
Benefits: eight weeks' leave, annual bonus, two-year local contract. 78 TU 76.

## LIBRARIAN (IRAN)

Abadan Institute of Technology. Overall supervision of the library including ordering of books and materials, classification, financial checking and training of personnel. Candidates must be Chartered Librarians with a degree, preferably in Science/Technology, and at least three years' experience in tertiary institutions. Experience in a Science Faculty would be an advantage. Preferred age range 30-50.

Salary: £7,200 to £9,000 p.a. approx.  
Benefits: Return passages for family accommodation and schooling provided at nominal charge, insurance and baggage allowances, free medical services. Two-year contract. 78 HO 118.

## SENIOR LIBRARIAN (IRAN)

Reza Shah Kebab University, Babolsar. To establish services and stock of new National Science Library, include students in library use and plan library development. Candidates, preferably 27-40 years, with degree and Dip. Lib. M.L.S. or equivalent and at least five years' experience in a university library.

Salary: £8,768 to £14,014 p.a. approx.  
Benefits: Return fares for family, free campus accommodation, two-year contract, renewable. 78 HU 75.

SENIOR LECTURER/LECTURER IN COMMUNICATION  
SKILLS (TEFL) (TANZANIA)

University of Dar es Salaam. Duties to include setting up a new Communication Skills Unit, course design, materials preparation and some teaching. Initially for Faculties of Science, Arts and Social Sciences.

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## Universities

## UNIVERSITY OF CAPE TOWN

Applications are invited from suitably qualified persons for the following posts in the Faculty of Medicine:

## (1) CHAIR OF OPHTHALMOLOGY

The Morris Mauerberger Chair of Ophthalmology falls vacant on 1st July, 1978. It is a full-time appointment and the salary is R19 200 per annum. In certain circumstances a non-resident allowance is payable. Closing date for receipt of applications is 26th May, 1978.

(2) SENIOR LECTURER IN  
ANATOMY

The salary for this post, which falls vacant on 1st January, 1979, is R16 200 per annum. The successful candidate will be required to participate in the teaching of Anatomy to medical and medical auxiliary students. Closing date for receipt of applications is 30th June, 1978.

(3) SENIOR LECTURER IN  
ELECTRON  
MICROSCOPY/HISTOLOGY

The person appointed will head the sub-department of Histology. Applicants need not necessarily be medically qualified, but if not should have a degree of appropriate relevance in science and have had experience in electron microscopy and histology. Supervision of anti-acid participation in the service and teaching commitments of the department will be essential. The salary is R14 200 per annum. Closing date for receipt of applications is 26th May, 1978.

General: Appointment in all cases will be made under the terms of the Joint Agreement between the University of Cape Town and the Cape Provincial Administration. Applicants should submit a curriculum vitae stating age, present salary, experience, references, publications, when available if appointed, and the names and addresses of three referees.

Further information should be obtained from the Registrar, Room 10, University of Cape Town, Private Bag 8, Rondebosch 7700, South Africa, to whom applications should be submitted under confidential cover.

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The AIFS is seeking a graduate to assist the Paris Director of its programme for American undergraduates studying at the Sorbonne. The primary responsibilities include supervising accommodation arrangements, executing a programme of student activities and, at Easter and during the summer, supervising travel arrangements for large numbers of American students visiting Paris on short study programmes.

Applicants should have: proven administrative and pastoral experience; fluent spoken and written French; some experience of dealing with Americans; stamina and enthusiasm. The appointment will be from 1st September, 1978. Six weeks' annual holiday.

Apply in writing with C.V. by 27th May to James C. Gillis, Director of Programmes, American Institute For Foreign Study, 37 Queens Gate, London SW7 5HR. 01-584 7802.



I hope that *The THES* can give it full support and help achieve this.

Yours faithfully,  
RONALD L. CRAWFORD,  
Department of natural philosophy,  
University of Glasgow.

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*Letters for publication should arrive by Tuesday morning at the latest. They should be as short as possible and the editor reserves the right to*